

## **REMARKS**

In response to the above Office Action, the specification has been amended to include subheadings as required by Rule 77 and to delete reference to claims. No new matter is being entered and their entrance is therefore requested.

Claims 8, 10 and 11 have also been amended to avoid the rejection of claims 8 and 10 under 35 U.S.C. § 112, second paragraph and for clarity. Withdrawal of the rejection of the claims under § 112 is therefore requested. No amendments have been made in view of the cited prior art.

Applicant's invention, as set forth in main claim 8, relates to a method for preparing a furan polymer impregnated wood, comprising impregnating wood in one impregnation step with a polymerization furfural alcohol monomer solution, said solution containing water, borax, a sodium salt of lignosulfonic acid, furfuryl alcohol, and at least one further compound selected from the group consisting of maleic anhydride, phthalic anhydride, maleic acid, malic acid, phthalic acid and combinations thereof, followed by a curing step.

Impregnating wood with furfural alcohol and polymerizing it to produce a useful furan polymer impregnated wood composite is disclosed, for example, in WO 02/30638, published April 18, 2002.

Typically the wood is impregnated with a polymerizable solution of furfuryl alcohol, water and a chemical initiator. Furfuryl alcohol is water soluble and easily forms a uniform solution with water. See page 1, lines 34-35 of the Specification. However, furfuryl alcohol that has been initiated with a chemical initiator to make it polymerize does not mix well with water, resulting in solutions that separate.

the wood may not be impregnated uniformly with the polymer. See page 2, lines 3-8 of the Specification.

Applicant found, however, that by including borax and a sodium salt of a lignosulfonic acid in the impregnating solution, that a more uniform distribution of furan polymer in the wood could be achieved leading to a more uniform color in and density of the furan polymer impregnated wood composite. A typical treating solution for use in the present invention is set forth on page 4, lines 13-15 of the Specification. It contains an aqueous solution of furfuryl alcohol, maleic anhydride as the polymerization initiator (see page 5, line 24), borax and a sodium salt of lignosulfonic acid.

In the Office action, the Examiner rejected claims 8-12 under 35 U.S.C. § 103(a) for being obvious over U.S. Patent No. 4,678,715 to Geibeler et al. (hereafter Geibeler) in view of U.S. Patent No. 5,804,591 to Valcke et al. (hereafter Valcke), a published U.S. Patent application No. 2003/0148965 to Hofer et al. (hereafter Hofer), and EP 1069173 (hereafter EP'173).

The primary reference to Geibeler discloses a process for treating wood with monomeric reactive compounds of thermosetting polymers. Reactive components contemplated may include, *inter alia*, maleic acid, a maleic anhydride (column 3, lines 6 and 7) and furfuryl alcohol (column 3, line 67). The reactive components can be introduced into the wood in solution or in gaseous form (column 3, lines 17-21).

There is no specific teaching in Geibeler that the furfuryl alcohol and maleic acid or anhydride can be used together as the reactive components. Assuming for the sake of argument that the reference does teach such combination, it does not, as acknowledged by the Examiner, teach anything about the presence of borax or a

sodium salt of lignosulfonic acid as required by applicant's claims. As pointed out above and in the specification, it is the presence of these two stabilizers that enables the furfuryl alcohol, initiated by one of the further compounds (e.g., maleic anhydride), to be water soluble, thereby providing a uniform distribution of initiated monomer in the solution used to treat the wood which results in a furan polymer impregnated composite wood product having uniform color and density. See page 2, lines 15-17 and page 3, lines 2-6 of the Specification.

The secondary references to Hofer, Shafael and Valcke also show solutions containing borax (Valcke and EP'173) or a sodium salt of lignosulfonic acid (Hofer and EP'173). However, none of the solutions using these stabilizers have anything to do with any polymerizable solutions for impregnating wood, let alone a polymerizable furfuryl alcohol monomer solution, to obtain a polymer impregnated wood product. Hofer relates to a pesticidal composition, Valcke to a fungicidal composition and EP'173 to an anti-inflammatory composition. More importantly, none of these references teach or even remotely suggest that the use of such stabilizers will make chemically initiated furfuryl alcohol more soluble in water.

How then can these references be said to suggest the use of borax and a sodium salt of lignosulfonic acid in a process for impregnating wood with a polymerizable furfuryl alcohol monomer? It is submitted that the only suggestion to do so comes from a reading of Applicant's Specification and not from anything taught by these references.

Applicant's invention overcame a problem caused by the water insolubility of initiated furfuryl alcohol monomer and there is absolutely nothing in these references which suggest Applicant's solution to this problem.

As noted by the Federal Circuit and as expressed, for example, in Interconnect Planning Corp. v. Feil, 774 F.2d 1132, 227 U.S.P.Q. 543 (Fed. Cir. 1985) at page 551:

When prior art references require selective combination by the court to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gleaned from the invention itself.

Further, in Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 5 U.S.P.Q. 2d 1434 (Fed. Cir. 1988), the court noted:

Something in the prior art as a whole must suggest the desirability, and thus the obviousness, of making the combination. [837 F.2d at 1051, 5 U.S.P.Q. 2d at 1438, citing Lindemann, 730 F.2d 1452, 1462, 221 U.S.P.Q. 481, 488 (Fed. Cir. 1984).]

or the more recent case of In re Kotzab, 217 F.3d 1365, 1369-70, 55 U.S.P.Q. 2d at 1313, 1316 (Fed. Cir. 2000):

A critical step in analyzing the patentability of claims pursuant to section 103(a) is casting the mind back to the time of the invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field. Close adherence to this methodology is especially important in cases where the very ease with which the invention can be understood may prompt one to fall victim to the insidious effect of a hindsight syndrome wherein that which only the invention taught is used against its teacher.

Most if not all inventions arise from a combination of old elements. Thus, every element of a claimed invention may often be found in the prior art. However, identification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention. Rather, to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant. [citations omitted]

Where is the “desirability” suggested in the secondary references of making the substitution suggested by the Examiner, especially when the references do not even relate to the same art as the present invention? There is nothing in these references that would suggest the result achieved by Applicant’s invention. As noted by the court in in re Dow Chemical Co., 837 F.2d 469, 5 U.S.P.Q. 2d 1529 (Fed. Cir. 1988) “both the suggestion of the invention and the expectation of its success must be found in the prior art” (emphasis added). See also M.P.E.P. § 716.02(a).

Accordingly, it is believed claims 8-12 are in condition for allowance.

Applicant would like to bring the Examiner’s attention to copending application Serial No. 10/398,123, filed September 4, 2003, which is the national stage of international application No. PCT/NO 01/00413 filed October 11, 2001, and which claims priority to Norwegian application No. 2000-5137, filed October 12, 2000. This Norwegian application is the application cited on page 1, line 23 of the Specification. WO 02/30638 discussed above is the publication number of PCT/NO 01/00413.

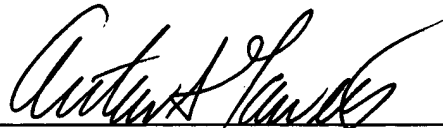
In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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